

REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections and further examination are requested. Upon entry of this amendment, claims 7, 8 and 12 are amended and claims 9-11 are canceled, leaving claims 7, 8, and 12 pending with claim 7 being independent. No new matter has been added.

Rejections Under 35 U.S.C. §112, second paragraph

Claim 7 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Claim 7 has been amended to overcome this rejection. In particular, claim 7 has been amended to recite "a land/groove structure having a land and a groove in which information is recorded on both tracks of the land and the groove."

Rejections Under 35 U.S.C. §103(a)

Claims 7-12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Matsukawa et al. (U.S. Patent Application Publication No. 2004/0062189) (hereinafter referred to as "Matsukawa") in view of Mizuno et al. (European Patent Application Publication No. 1 047 056 A1) (hereinafter referred to as "Mizuno").

Applicants submit that independent claim 7 is not rendered obvious by this combination of references. Claim 7 recites an optical information recording medium including a land/groove structure having a land and a groove in which information is recorded on both tracks of the land and the groove, and the recording can be performed at a plurality of linear velocities, wherein the ratio of the maximum recordable linear speed to the minimum recordable linear speed has a value of 2 to 3, and the ratio of the amount of light reflected from a groove in an unrecorded state to the amount of light reflected from a land in an unrecorded state has a value of at least 1.08 and no more than 1.19, wherein the recording or reproduction of information is performed by utilizing a phase change in the land/groove structure, the ratio of the groove half-value width to the track pitch is less than about 0.5 and greater than about 0.6; and the depth of the groove is

from 40 to 65 nm.

The specification clearly sets forth the advantageous of the value of the ratio of the amount of light reflected from a groove in an unrecorded state to the amount of light reflected from a land in an unrecorded state, which has a value of at least 1.08 and no more than 1.19. As stated in the specification, on Page 5, line 22 to Page 6, line 5, this range of values recited in the present claims is crucial to the improved operation and has unexpected results:

“In the case of grooves, in FIG. 3 it can be seen that when the value of the reflected light ratio RG/RL drops under 1.08, there is a greater effect of heat build-up during laser recording, and the length of the formed recording marks becomes unstable. Consequently, jitter suddenly worsens to over 10%. That is, for a conventional medium in which the linear speed ratio SH/SL is 1.5 or less, the jitter of a reproduction signal is kept low by setting the value of the reflected light ratio RG/RL to 1.08 or higher and making the grooves optically advantageous to the lands. In the case of lands, in FIG. 4 it can be seen that when the value of the reflected light ratio RG/RL goes over 1.19, the recording marks become narrower than the lands, there is a reduction in reproduction output, and jitter suddenly worsens to over 10%. Particularly in repeated recording, the edge portions of the grooves are susceptible to the effects of deformation and so forth, so the recording marks in these portions tend not to be erased, and there is a sharp worsening of jitter. Because of the above, in order to suppress this worsening of jitter in the reproduction signal with an optical information recording medium for land/groove recording capable of recording at a plurality of linear speeds and having a linear speed ratio SH/SL of 2 to 3, the value of the reflected light ratio RG/RL is preferably at least 1.08 and no more than 1.19. It [is] even more preferable for the reflected light ratio RG/RL to be at least 1.10 and no more than 1.17, to provide a margin of error in the reproduction signal jitter and set this jitter at no more than 9%.”

Specifically, the problem the inventors observed, when recording and reproduction were performed at the minimum linear speed SL on a phase change disk in which the value of the reflected light ratio RG/RL is about 1.05, was that the jitter of the reproduction signal becomes worse. Such a problem is further discussed on Page 3, line 1 to Page 3, lines 6 of the original specification:

“For example, with a phase change disk in which the value of the reflected light ratio RG/RL is about 1.05 and the ratio (SH/SL) of the maximum recordable linear speed (SH) to the minimum linear speed (SL) (hereinafter referred to as the

linear speed ratio SH/SL) has a value of at least 2, when recording and reproduction are performed at the minimum linear speed SL, the jitter of the reproduction signal is worse than with the above-mentioned conventional phase change disks that are on the market.”

It is clear from these portions of the specification that this specific ratio range is crucial to the improved operation and has unexpected results. As admitted by the Examiner, none of the cited prior art recites this specific range to reduce jitter of the reproduction signal. At best, the Examiner cites Mizuno as teaching that it is well known in the art for an optical recording medium to have a R/Gb greater than an RLb. However, the Examiner is only able to point to a general discussion in Mizuno of this ratio, which states that it may sometimes reduce jitter.

There is no disclosure or suggestion in any of the cited prior art, Mizuno included, that discusses the critically and unexpected results that occur at the specific claimed ratios. That is, the prior art merely suggests that in general, jitter decrease may be possible at R/Gb/RLb ratios greater than 1, and does not even hint that such improved characteristics could be achieved through the ranges claimed.

Therefore, Applicants contend that independent claim 7 and its dependent claims are allowable over the cited prior art, since they include elements crucial to the improvement of the invention and have unexpected results.

In view of the foregoing amendments and remarks, all of the claims now pending in this application are believed to be in condition for allowance. Reconsideration and favorable action are respectfully solicited.

Should the Examiner believe there are any remaining issues that must be resolved before this application can be allowed, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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December 10, 2008